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This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-14 (cancelled)

Claim 15 (previously amended) A method to increase throughput of a recovery boiler applicable to boilers with three air injection levels, the three levels being primary, secondary and tertiary air injection levels, the method comprising injecting oxygen at least at the secondary and the tertiary air injection levels, wherein the ratio of total oxygen to total combustion air at any air injection level is the oxygen enrichment concentration for that air injection level.

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Claim 16 (cancelled)

Claim 17 (previously amended) Method in accordance with claim 15 wherein the recovery boiler has the same oxygen enrichment concentration in the secondary and tertiary air injection levels, the oxygen enrichment concentrations being greater than 21%.

Claim 18 (original) Method in accordance with claim 15 wherein the recovery boiler has different oxygen enrichment concentrations in each air injection level, and the oxygen enrichment concentrations being greater than 21% in each air injection level.

Claim 19 (previously amended) A method of increasing throughput of a recovery boiler applicable to boilers with four air injection levels, the four levels being primary, secondary, tertiary and quaternary air injection levels, the method comprising applying oxygen enrichment to the secondary air injection level and to one or more of tertiary and quaternary air injection levels, wherein the ratio of

total oxygen to total combustion air at any air injection level is the oxygen enrichment concentration for that air injection level.

Claim 20 (previously amended) Method in accordance with claim 19 wherein oxygen is injected at the primary air injection level in addition to the secondary and quaternary air injection levels.

Claim 21 (original) Method in accordance with claim 19 wherein the recovery boiler has the same oxygen enrichment concentrations in the primary, secondary and tertiary air injection levels, the oxygen enrichment concentrations being greater than 21%.

Claim 22 (original) Method in accordance with claim 19 wherein the recovery boiler has different oxygen enrichment concentrations in each air injection level, the oxygen enrichment concentrations being greater than 21% in each air injection level.

Claim 23 (previously amended) Method in accordance with claim 19 wherein the recovery boiler has oxygen enrichment concentrations being greater than 21% and up to 30% in one or more of the primary, secondary, and tertiary air injection levels.

Claim 24 (previously amended) Method in accordance with claim 19 wherein the recovery boiler has oxygen enrichment concentrations being greater than 21% and up to 30% in one or more of the primary, secondary, and tertiary and quaternary air injection levels.

Claim 25 (previously amended) A method of controlling the oxygen concentration in the flue gas of a recovery boiler, the method being applicable to boilers with three levels of air injection, the method including the steps of:

a) supplying oxygen flows to at least two air injection levels of the recovery boiler, the two air injection levels being different from the primary air injection level, for oxygen enrichment of the two air injection levels;
b) generating a flue gas by burning black liquor in a combustion zone of the recovery boiler;
c) selecting a set point oxygen concentration;
d) sensing the oxygen concentration in the flue gas;
e) adjusting the oxygen flow injected in the tertiary air injection level, in order to maintain the sensed oxygen concentration at the set point oxygen concentration, while maintaining the flow of oxygen in the secondary air injection level constant.

Claim 26 (previously amended) A method of controlling the oxygen concentration in the flue gas of a recovery boiler, the method being applicable to boilers with four levels of air injection, the method comprising the steps of:

a) supplying oxygen flows to two air injection levels of the recovery boiler, the two air injection levels being different from the primary air injection level, for oxygen enrichment of the two air injection levels;
b) generating a flue gas by burning black liquor in a combustion zone of the recovery boiler;
c) selecting a desired set point oxygen concentration;
d) sensing the oxygen concentration in the flue gas;
e) adjusting the oxygen flow injected in the uppermost air injection level, in order to maintain the sensed oxygen concentration at the set point oxygen concentration, while maintaining the flow of oxygen in the other air injection level constant.

Claim 27 (previously amended) A method to improve the combustion stability of a recovery boiler comprising the steps of:

a) supplying oxygen flows to at least two air injection levels of the recovery boiler, the two air injection levels being different from the primary air injection level, for oxygen enrichment of the two air injection levels;
b) generating a flue gas by burning black liquor in a combustion zone of the recovery boiler;
c) selecting a set point oxygen concentration;
d) sensing the oxygen concentration in the flue gas;
e) adjusting the oxygen flow injected in the tertiary air injection level, in order to maintain the sensed oxygen concentration at the set point oxygen concentration, while maintaining the flow of oxygen in the secondary air injection level constant.

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Claim 26 (previously amended) A method of controlling the oxygen concentration in the flue gas of a recovery boiler, the method being applicable to boilers with four levels of air injection, the method comprising the steps of:

a) supplying oxygen flows to two air injection levels of the recovery boiler, the two air injection levels being different from the primary air injection level, for oxygen enrichment of the two air injection levels;
b) generating a flue gas by burning black liquor in a combustion zone of the recovery boiler;
c) selecting a desired set point oxygen concentration;
d) sensing the oxygen concentration in the flue gas;
e) adjusting the oxygen flow injected in the uppermost air injection level, in order to maintain the sensed oxygen concentration at the set point oxygen concentration, while maintaining the flow of oxygen in the other air injection level constant.

Claim 27 (previously amended) A method to improve the combustion stability of a recovery boiler comprising the steps of:

a) supplying oxygen flows to a primary air injection level of the recovery boiler for oxygen enrichment of the primary air;
b) generating a flue gas by burning black liquor in a combustion zone of the recovery boiler;
c) sensing a sulfur dioxide concentration in the flue gas;
d) adjusting the oxygen flow supplied to the primary air injection level in order to minimize the sulfur dioxide concentration.

Claim 28 (previously amended) A method to improve the combustion stability of a recovery boiler comprising the steps of:

a) supplying oxygen flows to a secondary air injection level of the recovery boiler for oxygen enrichment of the primary air; wherein the ratio of total oxygen to total combustion air at any air injection level is the oxygen enrichment concentration for that air injection level;
b) generating a flue gas by burning black liquor in a combustion zone of the recovery boiler;
c) sensing a sulfur dioxide concentration in the flue gas resulting from the combustion of said oxygen enrichment;
d) adjusting the oxygen flow supplied to the secondary air injection level, in order to minimize the sulfur dioxide concentration.

Claim 29 (original) Method in accordance with claim 28 wherein the oxygen enrichment concentration in each air injection level is controlled independently.

Claim 30 (previously amended) A method of controlling the temperature profile in a recovery boiler, the method including the steps of:

a) supplying oxygen flows to two air injection levels of the recovery boiler, the two air injection levels being different from the primary air injection level, for oxygen enrichment of the two air injection levels;
b) burning black liquor in a combustion zone of the recovery boiler;
c) selecting a boiler set point temperature profile;

d) sensing average temperatures at different heights in the boiler with an optical technique, and inferring a temperature profile to the boiler, adjusting the oxygen flow injected in the at least two air injection levels so that the temperature profile matches the boiler set point temperature profile.

Claims 31-33 (cancelled)